

## CLAIMS

1. A plasma display device comprising:
  - a plurality of discharge cells, which show a single color or multiple colors,
  - 5 being arranged; and
  - phosphor layers corresponding to the discharge cells being disposed and excited by ultraviolet rays for emitting light,
  - wherein a composition formula of at least one phosphor layer of the phosphor layers is  $Ba_{(1-x-y)} Sr_y MgAl_{10}O_{17}:Eu_x$ , and the phosphor layer is formed
  - 10 of a phosphor which has been heat-treated in an oxidizing atmosphere.
2. The plasma display device of claim 1,
  - wherein a heat-treatment temperature in the oxidizing atmosphere is not less than 600 °C and not more than 1000 °C.
- 15 3. The plasma display device of claim 1,
  - wherein in the composition formula of  $Ba_{(1-x-y)} Sr_y MgAl_{10}O_{17}:Eu_x$ , "x" ranges  $0.01 \leq x \leq 0.20$ , and "y" ranges  $0 \leq y \leq 0.30$ .
- 20 4. A method of preparing a phosphor, whose emission center is formed by adding at least one of Eu and Mn as an activator and whose host crystal is a composite oxide including at least one element of Ba, Ca, Sr and Mg,
  - the method comprising:
  - a reducing atmosphere process for firing a mixed material of the phosphor at least one time in a reducing atmosphere; and
  - 25 an oxidizing atmosphere process for heat-treating in an oxidizing atmosphere after the reducing atmosphere process.

5. The method of preparing a phosphor of claim 4,  
wherein a heat-treatment temperature in the oxidizing atmosphere  
process is not less than 600 °C and not more than 1000 °C.

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6. The method of preparing a phosphor of claim 4,  
wherein a composition formula of the phosphor is  $Ba_{(1-x-y)} Sr_y$   
 $MgAl_{10}O_{17}:Eu_x$  (where  $0.01 \leq x \leq 0.20$ ,  $0 \leq y \leq 0.30$ ).

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